Tricuspid regurgitation as a result of Chiari network attachment

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A 53-year-old man with a 2-year-history of severe mitral regurgitation and moderate tricuspid regurgitation (TR) was admitted for elective valvular reparative surgery. Previous 2-dimensional echocardiography had revealed severe mitral regurgitation as a result of myxomatous prolapse of posteromedial commissural scallop and moderate concentric TR. Cardiac catheterization confirmed normal coronary arteries with moderate pulmonary hypertension. The mitral valve was repaired with posteromedial commissural sliding plasty and ring annuloplasty. Subsequently, the right atrium was opened, and the TR was found to be caused by an abnormal Chiari network attachment to the septal leaflet, which resulted in persistent prolapse of the leaflet and concentric TR (Figure 1). The Chiari network was excised, and the moderately dilated tricuspid annulus was repaired with ring annuloplasty. Postoperative recovery was uneventful. Four years after the operation, follow-up 2-dimensional echocardiography showed a competent mitral valve and trivial TR.

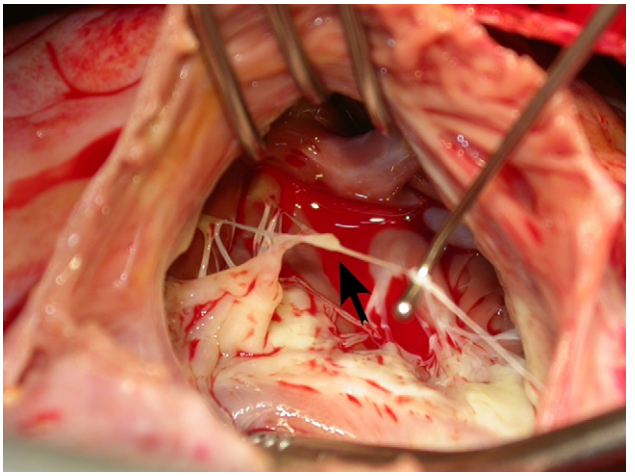

FIGURE 1. Intraoperative photograph showing an abnormal Chiari network attachment to the septal leaflet *(arrow),* which resulted in persistent prolapse of the leaflet and concentric tricuspid regurgitation.

The Chiari network, a congenital reticulated structure from the right valve of the sinus venosus (eustachian valve) connecting to various part of the right atrium, is seen in 1.3% to 4% of autopsy subjects. Generally, the structure is thought to be clinically insignificant; however, it has been reported to be associated with patent foramen ovale with intense right-to-left shunting and with atrial septal aneurysm. The Chiari network has also been reported to be involved in the pathogenesis of arterial embolism, infectious endocarditis, supraventricular arrhythmia, and catheter entrapment.

This represents the first reported case of TR caused by Chiari network attachment and shows an image of this unique anomaly.

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